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Market Reforms in Latin American Public Utilities

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Abstract

This paper shows that political competition generates incentives that affect the pace of adoption of market reforms in the context of policy convergence. Previous work shows the effect of financial and technological pressures in promoting policy convergence and the impact of institutional constraints on shaping the pace of policymaking. Controlling for these effects, this paper demonstrates the policy effects of political competition and ideological polarization between the incumbent and its contenders even at a time when ideological policy differences seem to be fading due to policy convergence. In studying policy adoption, we use duration analysis for the 18 countries of Latin America during the 1985-2000 period when most of the market reforms in public utilities were adopted.

Market-oriented reforms in telecom and electricity—including the privatization of assets, the liberalization of markets, and the separation of regulatory authority from operations—spread rapidly around the globe, and especially through Latin America, during the last part of the twentieth century. In 1980 only 10% of countries had adopted market reforms in electricity and 6% in telecoms; by 1999 these figures had risen to 41% and 73%, respectively. By the same date, 88% of the Spanish and Portuguese-speaking countries of Latin America—excluding non-capitalist Cuba—had adopted some market reforms in electricity, and 94% of them had done so in telecoms (Henisz et al 2005). The rapid adoption of market reforms in telecom and electricity in the region contrasts with the slow pace of their earlier nationalization, which started in the late nineteen century and extended through the end of the 1970s.[1]

The rapid adoption of market reforms in these sectors is explained by technological changes along with the competition for attracting increasingly mobile capital with policies favorable to investors. Whereas competition for footloose capital has promoted market-oriented policies across the board (Simmons 1999, Strange 1996), various studies have linked the diffusion of market reforms in telecom and electricity across the world to technological change, pressures from international financial institutions, and emulation of peer countries (Levi-Faur 1999, 2004, Henisz et al 2005).

The pressures for adopting market-oriented policies are even stronger in capital-scarce developing countries, such as those in Latin America, because investors' policy demands on these countries are more exhaustive than for advanced economies (Mosley 2003). In Latin America particularly, these pressures were heightened by the consequences of the debt crisis in the early 1980s. By sharpening the shortage of domestic capital and heightening fiscal deficits, the debt crisis increased the pressure to adopt market-oriented economic policies. Moreover, the diffusion of these policies was facilitated by the common cultural and religious background of Latin American countries and by the active role of international financial institutions as a source of capital and technical advice across the region.[2] As publicly-owned utilities suffered from underinvestment and technological delay in a context of capital scarcity, market-oriented reforms were both useful to attract investment and to generate fiscal resources through the sale of assets. Consequently, Latin America was the region of the world with the highest proceeds from privatization during the 1990s, and most of that revenue was generated by the privatization of public utilities (Chong and Lopez-de-Silanes 2005: 5). Yet, studies on privatization show that, despite the strong regional effect, there was variation in the pace

[1] Moreover, there were discontinuities in the nationalization process. Peaks of nationalization were during the 1940s and 1960s in telecom and during the 1950s and 1970s in electricity.

[2] Simmons and Elkins (2004) show that dominant language, common colonial heritage, and common dominant religion come close to capturing the identity orientations shared by countries and have an effect on the diffusion of economic policies, such as exchange rate, capital and current account policies (p.184). Teichman (2001) discuss the importance of international financial institutions and technocrats on policy diffusion in the region. Henisz et al (2005) show their influence on the diffusion of public utility reforms.

of reform across Latin American countries and they suggest that political variables were behind much of this variation (Chong 2005, Chong and Lopez-de-Silanes 2004).

In this article we explain the effect of political competition on the pace of market reforms in telecom and electricity, which were the two largest sectors in terms of privatization revenue.[3] They are also crucial infrastructure sectors for economic development, as well as essential public services, which are expected by most of the population to be effectively delivered by the state. Thus, they are crucial components in understanding patterns of policymaking in a region characterized by erratic economic growth and unstable polities in the last century. We focus specifically on the adoption of three market-oriented policies: privatization, market liberalization, and the establishment of regulators separated from operation. Using these three policies, we explain why Latin American governments that were facing similar technological and financial pressures for policy adoption chose to implement them at a different pace.

We make two contributions in this article. First, we show that political competition affects the pace of reform. We argue that the risks faced by incumbents with small electoral and legislative margins shape their incentives to adopt policy reform. Further, the relative ideological position of the incumbent and its contenders determines the credibility of policy alternatives. Second, we argue that these effects vary not only across countries but also across sectors. By comparing across sectors and countries, we provide evidence that the higher politicization of electricity makes political competition more influential on policy adoption in this sector than in telecom.[4] Indeed, political considerations brought several countries in the region to postpone privatization of electricity until after the sector had been opened to private investment.

In studying policy adoption, we use duration analysis for the 18 Spanish and Portuguese speaking countries of Latin America in the 1985-2000 period, when most of the market reforms in public utilities were adopted.[5] Table 1 shows the variation in the dependent variable—the timing of policy adoption—across countries, industries, and policies. It shows both the relative convergence of most countries in the region toward market reforms in telecom and electricity by the end of the period, as well as the variation in the pace at which countries adopted policy reform. We include dates for the decision to privatize (as well as the date when the sale of the main companies started), for the liberalization of markets, and for the establishment of regulatory agencies separated from operation. By the end of 2000, fifteen countries had decided to privatize telecoms (in the Dominican Republic, telecom had been private since the 1930s) and eleven had private operators in place (including the Dominican Republic). Meanwhile, fourteen countries had taken the decision to sell electricity assets and eleven had already privatized. Sixteen countries had opened the electricity market to private investment. Eleven countries had opened the long-distance telecom market to competition and ten had done it for local

[3] Whereas telecom offerings account for 36% of world privatization proceeds between 1990 and 2000, electricity privatization accounts for 16%, in Latin America 75% of the value of privatization revenue come from utilities and infrastructure (Chong 2005: 8-9).

[4] On the use of cross-sectoral and cross-national comparisons, see Levi-Faur and Jordana (2005) and Murillo (2001).

[5] We exclude non-capitalist Cuba from our study because it did not face the same pressures for policy diffusion, nor did it have the same logic of political competition as the other cases. The starting point of 1985 was chosen as the divestiture of AT&T in the US and the privatization of British Telecom in 1984 provided strong impetus to these reforms across the world.

communications. Finally, the establishment of telecom and electricity regulators had been accomplished in all countries, with the partial exception of Paraguay.

******* **TABLE 1 HERE** *******

The implications of market reforms, and especially privatization, for these sectors have been considerable. The volume edited by Chong and López-de-Silanes (2004) analyzes the consequences of privatization in seven Latin American countries, reaching the conclusion that it improved efficiency, increased productivity, and expanded access to public services. Using our own data, we find that the mean rate of change in the density of telephone lines and electricity consumption per capita in the region was higher in most cases after the sale of assets through privatization began than it was before.[6] Indeed, a difference of means test shows that on average the mean rate of growth for either service among countries that privatized was significantly greater after the public company was sold.[7]

There is some controversy, however, about the distributive effects of privatization. In spite of its apparent effect on efficiency and access to public services, Latin American public opinion is not favorable to the privatization of public services (Carrera et al 2005). Birdsall and Nellis (2002), who agree with the improvements in productivity and efficiency, point out to potential deleterious effects on income inequality. Indeed, some of these effects may be produced by the improvement in efficiency since part of the negative price impact of electricity privatization stems from the elimination of illegal connections.[8] Both the actual effect of privatization on the delivery of public services and its effect on the public's perception of access to these utilities make the reform of these sectors consequential and highlight the importance of understanding the role of political competition in policy adoption.

The remainder of the article is divided into six sections. The first section presents our argument on the competing effects of technological and financial pressures versus the incentives generated by political competition on the adoption of public utility reform. The second section presents our indicators for the explanatory variables, as well as our modeling strategy. Sections three to five present empirical results for privatization, market liberalization, and the establishment of regulators, respectively. The last section concludes with some implications for studying the reform of public utilities and policymaking in the region.

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[6] The year in which privatization began is taken out of the sample. Exceptions are the Dominican Republic in telecom and Colombia, Guatemala and El Salvador in electricity.

[7] This is also true if we use the number of telephone connections and the level of electricity consumption, or the change in these indicators. Differences in means were tested using the *ttest* command in Stata. The null hypothesis (mean (after) – mean (before)=diff=0) was rejected with 99% confidence in favor of the hypothesis that diff>0 for all versions of the test, with the exception of the rate of change in electricity consumption, which was rejected with 94% confidence. It is important to note that these means refer to changes in teledensity and electricity consumption after the first sale of assets, not the approval of privatization.

[8] In Argentina 436,000 of the first 481,000 additional subscribers to the privatized electricity system had illegal hook-ups and Birdsall and Nellis (2002: 22) assume that those were lower-income people.

| 1 | POLICYMAKING AND PUBLIC UTILITY REFORM

The effect of technological and financial pressures—as well as the impact of institutional constraints—on policymaking has been well studied. Thus, in this article we focus specifically on how political competition shapes the process of policy adoption. Whereas technological and financial pressures promote policy adoption and institutional constraints make it more difficult, the effect of political competition depends on the relative power—in terms of votes and seats—of the incumbent and its main challengers, as well as their relative ideological positions. The role of ideology is remarkable in light of the seemingly pragmatic adoption of market reforms in the context of strong technological and financial pressures. Indeed, in line with the existing literature on policy convergence under economic duress in the region (Stokes 2001, Weyland 2002), we find that the ideological position of the incumbent party in a left-right scale has no effect on market reforms.[9]

Financial and technological pressures promote policy adoption. Financial pressures for policy adoption can be exercised by international financial institutions (Vreeland 2003) or by investors through credit ratings (Mosley 2003). In their study of public utility reform, Henisz et al. (2005) suggest that coercion from international financial institutions explains the adoption of privatization (as well as the establishment of regulators) across the globe. As the Latin American debt crisis heightened fiscal deficits and capital scarcity, it also increased the influence of international financial institutions as lenders of last resort, especially after the failure of the initial heterodox adjustment policies (Edwards 1995). Fiscal deficits provided a strong incentive for privatization as the sale of valuable assets serves for filling the public coffers (Castelar Pinheiro and Schneider 1994, Armijo 1999). The effect of technological pressures on policy adoption is suggested by the predominance of cross-sectoral patterns of policy adoption (earlier in sectors with more technological change) rather than cross-national patterns (earlier in countries with more favorable institutional context) according to Levi-Faur (1999, 2004). As technological changes in telecom were broader than in electricity, the path of reform was faster in the former than in the latter (Bartle 2002).

In addition to financial and technological pressures, political conditions also affect the process of policymaking—especially when reforms have a broad scope, as they tend to in public utilities. The literature on policymaking has long focused on the effect of institutional constraints on policy adoption. The volume edited by Haggard and McCubbins (2001) summarizes the effects of institutional constraints in presidential systems, such as those in Latin America. Institutional constraints include power distribution and political structures that generate veto points (Tsebelis 2002). Hence, in

[9] We ran all our models using dummies for the ideological position of the incumbent – as opposed to its relative position *vis a vis* the opposition – and find that they were not significant in explaining the pace of market reforms in telecom and electricity in the region. Henisz et al (2005) find that the ideology of the incumbent has no effect on the reform of public utilities around the world. Using data from 26 OECD countries, Schenider et al (2005) also find that ideology has no effect on the privatization of infrastructure in the 1990s.

analyzing policy adoption, we control for the effect of institutional constraints that makes changes from the status quo, such as policy adoption, harder.[10]

Studies of institutional constraints and policymaking have usually centered on the powers of the president—combining the constraints of the presidency derived from the distribution of partisan power between the executive and the legislature. Because market reforms seem to signal the era of policy convergence across different political ideologies, we are particularly interested in the effect of ideological differences between the incumbent and his or her opponents. Measures of restrictions to presidential capacity based solely on party loyalties disregard the polarization that can be generated by contenders that are farther away ideologically from the incumbent and have fewer incentives to compromise on policymaking. Ideological polarization can shape inter-branch conflict by restricting the universe of possible policy coalitions and generating incentives for policy obstruction rather than compromise. [11] This type of political obstruction is likely to emerge for any policy, but will tend to be more prevalent when legislative obstruction can have effects on public opinion as it is likely to happen for policies that have a broad effect on the population.

Whereas both institutional constraints and ideological distance should have an effect on the incentives to adopt or obstruct any policy, the effect of polarization ought to be even stronger on the adoption of policies that have broad effects on the population. Similarly, the impact of political competition between the incumbent and his or her contenders on policymaking should be particularly important when policies are not only publicly visible but also have a potential electoral impact. We analyze two dimensions of this effect: a) the relative power—measured in votes and seats—of the incumbent and his o her main challengers, and b) the relative ideological position of the incumbent and of his or her opposition. Power differentials affect the extent to which policy adoption represents an electoral risk for the incumbent as well as the costs that legislative defeat entails. Ideological positioning affects the credibility of policy alternatives, which is an important consideration in politician's electoral strategy.

The first dimension of political competition centers on the difference in votes between the incumbent and his or her main political opponents. Smaller electoral margins increase the risks of adopting a potentially unpopular policy as they increase the marginal value of votes. Smaller legislative margins hamper the government's ability to adopt their desired policy and increase the costs of a legislative defeat. The second dimension focuses on ideological incentives, even in the context of policy adoption under technological and financial pressures that induce pragmatism in policy preferences. We focus both on the ideological stance of the incumbent and the opposition and on their relative ideological position because the credibility of policy alternatives is shaped by both these factors. On one hand, if the opposition is *to the left* of the incumbent, it will be able to more credibly propose alternatives to market reforms for disaffected voters. On the other hand,

[10] Because we are not exploring their effect on the actual sale of assets but rather on the authorization of privatization, we are not looking directly at the credibility effects of institutional configurations as described by Levy and Spiller (1995). As shown by Henisz and Zellner (2005), institutional constraints may increase policy resoluteness (and regulatory stability) and thereby induce investment.

[11] Similarly, Bassinger and Hallelberg (2004) show that ideological distance between veto players increases transaction costs of policymaking and makes governments less responsive to financial and trade pressures for decreasing their tax rates in OECD countries.

regardless of where the incumbent lies on the ideological spectrum, when the incumbent faces opposition from parties that are *right-wing*, which are more likely to agree with market oriented policies, an appeal from the opposition to voters opposed to these policies will hardly be credible. Other things held equal, an opposition that stands to the ideological left of the incumbent should make reform adoption harder, while the existence of an opposition formed of right-wing parties should make it more likely.

Finally, whereas ideology seems not to have a substantive impact on the trend to market reforms in the region, we believe that in policies of lower public visibility—such as the establishment of regulatory authorities that has no immediate effect on prices or supply—we should observe the effect of ideological legacies from state intervention on the likelihood of policy reform. The prevalence of pragmatism in policy adoption is illustrated by the fact that left-wing parties in office were no less likely to adopt market reforms than other parties. However, legacies from previous nationalization can have an effect on the establishment of regulatory authorities because, of the three policies that constitute the standard market-oriented package of public utility reform, this one is the only one that involves re-regulation rather than state retrenchment (Vogel 1996, Levi-Faur 2002). As a result, we expect political parties with a legacy of nationalization to be more favorable to the establishment of regulatory authorities in the sectors where they had promoted state intervention in the past because technical cadres to which they delegate policymaking have acquired their experience in the previously publicly-owned sector. By contrast, we associate the adoption of privatization with a more pragmatic response to financial and technological pressures and thus expect legacies of state intervention to have a stronger effect on the credibility of policies for potential opponents than on the government's preferences over policy reform. As a result, we expect a "Nixon-in-China" effect whereby those with a past of state intervention are better able to adopt privatization because voters do not discount their intentions as ideologically driven (Cukierman and Tommasi 2001.)

In short, the broad reach of public utility reform makes it a potentially important electoral issue. Moreover, privatization tends to be unpopular and, as a result, its adoption is unlikely if incumbents are confronted with small electoral margins and if they do not have a large legislative advantage. Having rivals to their left that can provide a credible alternative to market-oriented policies makes policy adoption less likely whereas a right-wing opposition should make it more likely. The politicization of these reforms of broad scope is likely to emerge also through the effect of institutional constraints, and in particular, through the effect of ideological distance between the incumbent and his or her legislative opposition and the incentives it generates for policy conflict and the opportunities it creates for posturing from legislators.

Since the effect of political competition on policy reform depends on the potential impact of policy adoption on the electoral prospects of politicians, we expect that its effect will be stronger in electricity than in telecom because potential losses are larger. In Latin America, by the mid-1980s, the coverage of electricity was broader than that of telecom, at least partially because electricity was considered a necessity and telephone connections a luxury given that public telephones could provide service for those without

access.[12] Indeed, in seven countries surveyed in 1995 the public was more likely to accept private provision in telecom than in electricity (Latinobarometro 1995).[13] Thus, whereas telecom reform involved promising access to a majority of the population for a service for which they had no access without risking changes in relative prices, electricity reform entailed a threat to subsidized prices enjoyed by large portions of the population —or to free access for the portion of the population that was stealing energy. Moreover, because exit from the public network is harder in electricity than in telecom, large users are more likely to exercise their voice in the former than in the latter. The fact that large users in electricity are usually in the traditionally organized industrial sectors furthers this effect. As potential losses are more likely to generate mobilization than potential gains, electricity reform had a higher potential for politicization, heightening the impact of political competition on politicians' calculation of whether or not to implement reform.[14]

In the remainder of the article we will explicitly model the role of political competition in policymaking decisions—including both electoral and legislative margins as well as the effect of ideology on the incentives and credibility of rivals to oppose market reforms in public utilities. In addition, we will also test existing arguments about the effect of financial and technological pressures in generating the wave toward market reforms and about the role of institutional constraints in providing the opposition with tools to obstruct policy adoption. In the next section we describe the empirical indicators we use and the modeling strategy we will follow.

[12] In 1989, when only Chile had privatized both sectors, there were 5 phones per 100 people on average in all Spanish and Portuguese speaking countries of Latin America (excluding Cuba) according the the ITU whereas the average coverage of electricity was 60% (World Bank 1991).

[13] The countries were Argentina, Chile, Mexico, Paraguay, Peru, Uruguay, and Venezuela and only in Argentina more than 50% of the population preferred private provision.

[14] Pierson (1994: 18) explains this effect for social policy based on propensity to risks since individual are more risk adverse with respect to gains but risk seeking with respect to losses.

| 2 | MODELING POLICY REFORM

In this section we discuss our modeling strategy and the indicators that we use to measure the variables presented in the previous section. In the following sections we test our expectations about policy reform in all three policies for the two industries, electricity and telecom, in eighteen Latin American countries. To do this, we have constructed a dataset that covers the years between 1985 and 2000 (observations are country-year) and records when the government decided to privatize, open the sector to competition and/or establish regulators in each sector. Given our interest in the timing of policy adoption, we use duration analysis to explore the factors that affect the probability that a country will choose a particular policy, given that it has not done so up to that point in time.[15] In terms of duration analysis, the individuals in our sample are countries, which are observed when they enter the sample (here the entry point is 1985) and are observed up to their exit from the sample or *failure* (in this case, countries *fail* when they decide to adopt a policy).

Given the nature of our data, and the limitations imposed by the small number of cases, we decided to use a Cox proportional hazards model (Cox 1972) instead of more restrictive parametric models.[16] The choice of this specification allows us to model policy reform without having to specify a priori the relationship between the event of interest – policy reform – and time.[17] Importantly, Cox proportional hazards models assume that the relationship between the hazard functions of two countries with a different set of covariates are related to each other through a constant. In practice, this is not always the case because the effect of some variables on the likelihood that a policy reform will occur can change over time and in this sense is *non-proportional*. In the models we present in subsequent sections, we test for proportionality.[18] The variables that resulted problematic were corrected by adding an interaction with time. In this way, we can estimate the direct effect of the explanatory variable (at time = 0) and control for its effect over time (see Box-Steffensmeier and Zorn 2001).

To test our theoretical expectations, we include measures for the five explanatory variables derived from our discussion in previous sections: financial and technological pressures, institutional constraints, political competition, and ideological legacies. To assess the influence of *financial pressures* on the decision to privatize we focus on the availability of foreign capital and on fiscal constraints. We use the size of debt service as a proportion of total exports (*Debt*), the influence of the IMF on countries that have

[15] Others have chosen to model the *adoption* of policy reforms and not their *timing*, using logit instead of duration analysis (see Henizs et al 2005). Duration analysis allows us to explicitly model the process of policy convergence that characterized the region and to find the factors that determined differences in the pace of policy adoption within this general trend.

[16] Using a parametric model would imply imposing a specific structure on the relationship between time and the adoption of policy reform. However, we have no theoretical reason to choose a specific functional form (i.e. logistic, exponential, loglogistic, etc.).

[17] We chose to deal with tied failures using the *efron* method in the calculation of the model given the small number of cases and the fact that there were a relatively high number of ties.

[18] We used the *stphtest* function in stata to test the proportional hazard assumptions. The test is based on Schoenfeld residuals and tests the relationship between the residuals and time.

subscribed stand-by agreements (*Under IMF*)[19], and the fiscal budget of the government (*Budget*) (see Appendix 1 for a complete list of all the variables and their source). We expect the former two to increase the likelihood that reform will take place by imposing pressures on capital-scarce countries and the latter to have a negative effect because deficits heighten the need for fiscal resources.[20] We expect fiscal budgets to have a strong effect on privatization, as this policy generates revenue, but not on the other two policies, which provide no resources to the Treasury. Instead, foreign investors should care about the investment opportunities opened by liberalization and we use *Debt* as a proxy of their influence. Because both industries have high sunk cost that should make investors care about regulatory expropriation, we expect foreign investors and international financial institutions (using *Under IMF* as a proxy) to be influential on the establishment of regulators (Levy and Spiller 1995).

We measure *technological pressures* using *Teledensity* (number of telephones per 100 inhabitants) and *Electricity Consumption per Capita* as they are good approximations of the need of reform as a means of catching up technologically and expanding coverage. We expect pressure for policy adoption to be inversely related to the density of services in each sector. In electricity, economic growth (*Growth*) should be positively related with electricity demand—as it reflects the energy needs of large users.[21] We expect technological pressures to have a stronger effect on privatization –through residential consumers– and on market liberalization –through large users— than on the establishment of regulators, which has no immediate effect on energy supply.[22]

In assessing the effect of political conditions on policymaking, we use different measures of *institutional constraints*. We use dummies to indicate when the party(ies) in government do not hold 50% +1 or more seats in the legislature (*Divided Government*) and when the president's party does not hold a majority of seats in the legislature (*Minority President*) to test for the effect that the lack of majority support can have on the ability of the president to pass policy reforms.[23] We also use a measure of the number of independent veto points over policy outcomes constructed by Henisz (2004) that takes into account the distribution of actors' preferences as well as the extent of

[19] As an alternative measure of financial pressures on Latin American countries, we used an indicator of whether a loan from the World Bank was in place. We found this variable to have a significant effect on the likelihood of both privatization and the establishment of regulators in telecom. However, we only have data for telecom so chose to present results for our IMF indicator throughout in order to allow direct comparisons across both sectors.

[20] It is important to note that we have lagged all these variables one year to reflect the assumption that financial decisions by the government are made taking into account last year's resources.

[21] Growth is lagged one year to account for the fact that the government needs time to react to domestic policy demands.

[22] Workers of privatized companies also have large stakes in the reform and should influence the policymaking process as shown by qualitative studies of privatization in the region (Murillo 2001). However, there is no reliable yearly data on unionization either at the sector level or at the national level to permit a test of labor influence in our statistical models.

[23] *Minority President* includes *all presidents* who's party does not hold a majority in congress – regardless of whether they are part of a legislative coalition or not. *Divided Government* includes single-party and coalition *governments* that do not have majority support in congress. President Banzer in Bolivia, for example, is classified as a minority president because his party's legislative share was only 25%, but his government was not divided because he formed a coalition that reached a legislative share of 74% (see Martinez Gallardo 2005). In this way we distinguish between the difficulties associated with not having a legislative majority and with having to negotiate with coalition partners to attain this majority support.

institutionalized constraints on the decision-making powers of the president (*Political Constraints*), including the alignment across the executive and legislative branches using data on their party composition. In all cases, we expect a negative relationship between institutional constraints and the likelihood of reform.

We also evaluate the effect of ideological differences between the president and his or her opposition on policy conflict or compromise. We measure the ideological distance between the president and congress by taking the absolute value of the difference in the ideological score of the incumbent and the average of all opposition parties in the legislature (weighted by their seat share) (*Distance*).[24] As higher ideological polarization augments the incentives for inter-branch conflict and promotes policy obstruction rather than compromise by opposing parties, we expect it to have a negative relation to policy adoption.

We measure *political competition* by assessing the effects of both the electoral margin and the legislative advantage of the incumbent, as well as the relative location of the president and the opposition in the ideological spectrum. First, we measure *political competition* using the margin (in vote percentage) with which the president won the election to the next most voted party (*Margin*). We also test the effect of the legislative margin of maneuver of the president using the difference in the number of seats held by the incumbent and by the main opposition parties in the Lower House (*Legislative Advantage*). These variables tap into the incentives that both the competition and the incumbent have to support or oppose policies that might represent an electoral risk.

We then add ideological variables to the measures of political competition. Two ideological measures of political competition are of particular interest. First, we include a dummy that indicates when the incumbent's legislative opposition is ideologically located to the government's left (*To Left*). Second, we include a dummy that indicates whether the legislative opposition is located at the extreme right of the ideological spectrum, i.e. when it scores, on average (weighted by seat share), more than 4 on our ideological scale (*Right Opposition*). As we have argued, these measures assess the ability of the opposition to offer credible alternatives to the incumbent's policies, especially in the context of reforms with electoral effects.

We expect that presidents who won the election by a larger margin and who govern with a larger legislative advantage will be more likely to implement reform. As we have argued, larger margins will lower the risk to the incumbent of adopting unpopular policy reforms that might imply electoral losses in the future. When the president faces opposition from the left, we expect the likelihood of reform to be smaller. By contrast, when the opposition is mainly formed of right-wing parties the likelihood that reform will be adopted will increase.

Although we expect politicization of policymaking in both sectors since policy effects are important and broad—especially through institutional constraints and ideological polarization— political competition should play a stronger role in the privatization of electricity than in telecom because this sector is more likely to become electorally

[24] All ideological variables are calculated using a 5-point scale, where 1 is the left-most score and 5 is the right-most score. Ideological scores are constructed based on Coppedge (1997) and other country-specific sources, as well as consultations with country specialists. See Appendix 1 for a complete list of all the variables and sources.

important. Indeed, the politicization of electricity privatization brought many countries to open this industry to private investment before privatizing as an alternative way to deal with supply limitations. Mexico is a good example of this strategy as President Salinas opened electricity generation by decree in 1992 because privatization would have required the involvement of Congress and, in particular, of legislators from the governing Institutional Revolutionary Party (PRI), who were not favorable to privatization.[25]

Finally, to measure the *ideological legacies* of incumbents, we use a dummy variable to measure whether the incumbent party had been involved in the process through which the sector was nationalized in the past. Our expectations are positive for privatization and for the establishment of regulators as described in the prior section. We include two economic control variables: GDP per capita and a dummy for privatization.[26] The former is lagged one year and controls for the wealth of the country when suffering pressures to adopt reforms. The latter is a control variable that assesses whether market liberalization and the establishment of regulators were adopted as a result of privatization. We also include two political control variables: one takes into account the electoral cycle which might affect the president's incentives to adopt policy reforms, and the other controls for the law and order environment, which might play a role in the demand for regulation.[27]

In the following sections we present our results on the hypothesized effects of these variables on all three policies in both industries. We restrict our tests of these effects on market liberalization to the electricity sector due to data limitations in the area of telecoms. But we also include an analysis of the lag between the opening of electricity markets to private investment and privatization to assess whether the higher politicization of electricity promotes a particular sequencing in policy adoption.

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[25] In a 1995 survey of Mexican legislators, around 60% of PRI legislators expressed a preference for privatizing only public services that do not affect many people (Alcántara 1995-2004). The seventy four PRI legislators included in the sample belonged to the 1994-1997 Congress that had approved the creation of an electricity regulator. When PRI president Ernesto Zedillo proposed electricity privatization to the next Congress in 1999, PRI legislators (and even the PRI presidential candidate) failed to support the proposal as they feared it would mean risking an electoral defeat in the presidential election the following year. This fear was supported by surveys showing that Mexicans considered this issue on their electoral calculations in the 2000 presidential election (Magaloni and Poire 2004).

[26] We ran models including inflation because as a control variable because Weyland (2002) and Stallings and Peres (2000) argue that high inflation affects the pace of market reforms in general, but failed to achieve robust results and do not include them in this article.

[27] Arguments about the diffusion of policy reform are hard to test in the context of the type of empirical analysis we use here. Others have used the number of previous privatizations in the region (see Kogut and Macpherson 2004, Henisz et al 2005, Levi-Faur 1999, 2004) as an indicator of the declining cost of privatizing as others adopt (and test) the reforms. By using event history analysis we model the dynamic aspect of reform – the factors that affect whether a country is an innovator or a follower – but we do not include the number of previous privatizations in the region because this variable is perfectly collinear with the country variable, i.e. the variable takes the same value for every country for each year, and we cannot estimate hazard rates for this indicator. See Meseguer and Gilardi (2005) on the issues involved in measuring diffusion. We also used Lora's (2001) index of structural reforms as a control. The index measures the extent to which market reforms in several areas had been put in place in each country, each year providing a way to assess whether there was some diffusion effect stemming from financial pressures. However, we chose not to include it in the models presented here because it is not significant for telecom and it is highly collinear with some of our indicators in the electricity regressions, artificially inflating the significance of our results.

| 3 | PRIVATIZATION OF TELECOM AND ELECTRICITY

In this section we analyze the conditions that influence the adoption of privatization in both sectors. In the following paragraphs we present results for models that include measures of financial pressures and technological pressures for policy adoption and institutional constraints on policymaking. Importantly, we include indicators of political competition to test the arguments we have laid out about the effect of political competition on the incentives to privatize, especially in the electricity sector where we expect stronger effects than in telecom.

Table 1 shows the relevant dates for privatization adoption in each country including both the year when privatization was approved and the year when the actual sale of assets began. We are particularly interested in the political decision to adopt privatization rather than the actual sale of assets, which is affected by available capital and technical issues. Consequently, for both sectors, we focus on the group of countries that had decided to privatize by the end of 2000, even if they were still in the process of implementing the sale of assets.

Telecom

Our findings give partial support to our expectations. As shown in Table 2, financial pressures have the expected effect on the privatization of telecoms. Although the effect of external debt service is not significant and the positive effect of, being under an IMF agreement is not robust across all model specifications, the indicator of World Bank telecom loans is significant for all specifications of the model. The hazard rate indicates that where such a loan is in place countries are between 4 and 6 times more likely to adopt privatization. More importantly, as suggested by the literature, fiscal deficits do influence the decision to sell public assets in the expected direction. The fiscal budget has a negative and significant effect: an increase of one point in the size of the deficit as a percentage of GDP decreases the probability of adopting privatization by around 16%.

******* **TABLE 2 HERE** *******

The effect of *teledensity* (the number of telephones per 1000 inhabitants) is non-proportional. It has a significant and negative effect on the privatization when an interaction with time is not included. However, when we control for time, a higher teledensity is associated with an increase of 11-14% in the likelihood of privatization at the outset of the period, but this effect becomes significant and negative as time goes by (see Figure 1). This effect suggests that technological pressures hit first the countries with a higher teledensity and, as their example takes on, the less developed countries are more likely to reform in order to catch up. GDP per capita has a similar effect as it is positive at the beginning of the period but becomes significantly negative with time.

The Henisz's index of institutional constraints has no significant effects and divided governments and minority presidents are no less likely to privatize than presidents whose

party has a legislative majority or unified governments. Yet, the ideological distance between the executive and the legislature, which increases the incentives for the legislative opposition to obstruct policy adoption, has a significant effect. This effect is rather substantial: broadening the distance between the president and the legislature by one-point (on a 5-point scale) translates into a decrease of over 40% in the probability of reform. We do not find significant effects for any indicator of political competition, but find strong evidence for a "Nixon-in-China" effect in the privatization of telecom: parties with ideological legacies of state intervention are substantially more likely to adopt this policy.

In sum, we find that fiscal deficits accelerate telecom privatization whereas teledensity affects the decision to privatize in a non-proportional way. As expected, we find that the politicization of policy reform in this sector was limited, as institutional constraints and political competition had practically no effect on the decision to privatize telecom. We did find, however, that the ideological distance between the president and congress delays policy adoption. We also find support for a Nixon-in-China effect as parties with a nationalizing past are more likely to privatize.

Electricity

As in telecom, we find some evidence of financial pressures. Although neither being under an IMF agreement, nor the size of the external service affect the decision to privatize electricity, as in telecom, fiscal deficits do matter. Fiscal budgets have a significant negative effect on the decision to privatize electricity and an increase of one percent in the budget decreases the likelihood of policy adoption by 15%.

***** TABLE 3 HERE *****

We also find that electricity consumption per capita has a significant negative effect on the likelihood of privatization. However, as teledensity for telecom privatization, this effect is non-proportional. The direct effect of electricity consumption over the likelihood of privatization is positive, however, this effect becomes significant and negative, indicating that after 1992 a higher level of consumption translated into a smaller likelihood that privatization would occur (see Figure 2).[28] As in telecom, it seems that countries with higher per capita consumption were more likely to adopt privatization at the start of the period, but later in the period poorer countries were more likely to do it in an effort to catch up. The effect of economic growth (our proxy for electricity demand by large users) also changes over time—it is negative at t=0 but its interaction with time has a positive effect—and its significance varies somewhat with model specification, thereby making it hard to precise the rate at which the effect decreases.

We find some evidence that institutional constraints affect privatization in electricity. Neither divided governments nor minority presidents were any less likely to privatize. Yet, Henisz's political constraints index has a significant effect on predicting the approval

[28] We also used electricity losses as an alternative measure, but its effect was not significant.

of privatization laws—an increase of one standard deviation (.23) in the 0-1 scale reduces the likelihood of adopting privatization in 45%. The ideological distance between the executive and the legislature has a negative effect as an increase of one point in the ideological distance between the executive and the legislature also reduces the likelihood of privatization by around 45%.[29] Our measures of political competition provide evidence of the somewhat higher politicization of this sector when compared with telecom. The president's legislative advantage has a positive effect: an increase of one standard deviation (65 legislative seats) in the president's legislative advantage makes the government nearly twice as likely to pass a privatization law. Thus, a larger legislative advantage increases the incumbent's capacity to get laws approved and reduces the risks of political competition from its main legislative challengers.[30] Finally, in contrast with telecom, we find no increase in the likelihood of reform for political parties that participated in nationalizing the state enterprise in this sector.

To summarize our results for the adoption of privatization, we find, in consonance with the literature on privatization in the region, that larger fiscal deficits increase the likelihood of privatization in both sectors. This finding also lends support to the idea that privatization was driven by pragmatism rather than by sheer ideological conviction. The increase in the likelihood of privatization when the incumbent belonged to a party that had been involved in the nationalization of the sector confirms this pragmatism, albeit only in telecom. We find non-proportional effects for teledensity and electricity consumption that suggest that technological pressures hit the richer countries first and then the poorer ones. We find support for our expectations regarding inter-industry differences based on political effects. Formal institutional constraints only have a weak effect on the privatization of electricity and none in telecom. Indicators of political competition have a somewhat stronger effect on the privatization of electricity than on telecom.

[29] As we explained before, to calculate ideological distance we take the absolute value of the difference in the ideological score of the president (or parties in government) and the opposition parties in the legislature. This variable measures polarization, and not the relative position of parties. If, for example, the incumbent is from a right-wing party with a score of, say, 4.5, and the main opposition parties in the legislature average a score of 3, the distance is of 1.5. The measure of ideological distance would be the same if the scores for the executive and the legislature were reverted.

[30] Although the existence of a right-wing opposition was not significant for countries that had passed a privatization law, the sale of assets in electricity was made significantly (and substantively) more likely by a legislative opposition that was right-wing.

| 4 | MARKET LIBERALIZATION

In our quantitative analysis, we are limited to studying the liberalization of electricity market to private investment. In telecom, market liberalization was often scheduled at the time of privatization as many countries adopted legal monopolies to increase the value of their assets and to smooth the ending of cross-subsidies. If the sale of assets includes a scheduled timeline for opening to competition, it is impossible to relate the conditions of that year with the policy decision taken at the time of telecom privatization. Hence, we only model the adoption of market liberalization to private investment in electricity, using hazard models to estimate the factors that affect the likelihood that a country will adopt this policy. We use the same measures of financial and technological pressures, institutional constraints and political competition that we used in the previous section.

We found limited evidence that financial pressures were influential in the decision to open electricity markets to private investment (see Table 4A). Being under an IMF agreement had no effect, and neither did the fiscal deficit as no fiscal resources were generated through this policy. Yet, the size of the external debt did have a significant and positive effect, suggesting that foreign investors were pressing for investment opportunities in this area. An increase in the level of external debt of one standard deviation translated into an increase in the hazard of opening the industry to private capital of around 80%.

Although per capita electricity consumption did not have a robust effect,[31] GDP per capita did increase the likelihood of competition significantly – an increase of one standard deviation in the level of GDP per capita of a country translated into an increase of around 80% in the likelihood of reform. Furthermore, economic growth had a significant positive effect, suggesting that electricity demand from large users rather than from residential consumers was influential in the opening to private investment in electricity. This effect was substantively large: a one-point increase in a country's growth rate made the odds of adopting this reform around 50% larger.

****** **TABLE 4A HERE** *******

Whereas the political constraints index, divided government, and minority president had no effect on the adoption of this policy, the ideological distance between the executive and the legislative had a significant negative effect. An additional point of ideological distance between the executive and the legislature (*Distance*) decreased the probability of reform adoption by around 50%. In terms of political competition, the president's electoral margin and the executive's advantage in legislative seats had significant effects in the expected direction. An increase of one standard deviation in the president's electoral margin translates into an increase of 1.8 in the odds of opening the market to private investment. An increase in one standard deviation (65 seats) in the advantage for the

[31] Like before, electricity losses had no effect so it is not included in the regressions.

incumbent in legislative seats (*Legislative Advantage*) made the reform nearly twice as likely. However, the ideology of the opposition did not have a significant effect.

In many cases, the decision to open the electricity sector to private investment is the result of domestic pressures to increase the energy supply—as indicated by the effect of lagged growth on this decision—when governments have not adopted privatization. Because electricity privatization has the potential to cause electoral costs when political competition is high, we expect that the lag between the decision to open the market to private investment and the decision to privatize will capture, at least partly, the sort of politicization that prevented governments from privatizing the sector in the first place (Table 4B). Therefore, we analyze the decision to privatize electricity given than this industry had already been opened to private investment. Because in electricity the decision to privatize came in almost all the cases in our sample after (or simultaneous with) the decision to open the market to private investment (see Table 1 for dates), we can use duration analysis to relate a set of independent variables with the lag between policy decisions in this sector.[32] As governments signaled their reformist decision by opening electricity to private investment, we expect that privatization will be delayed (the lag between policy decisions will be larger) when political competition is high and increases the electoral risks for the reformist administration.

As expected, we find that the decision to privatize, given that electricity markets had been opened to private investment, is highly politicized as all four indicators of political competition had significant effects in the expected direction. By contrast, none of the three indicators of financial pressures had an effect. Electricity consumption per capita has a negative effect, but it is not robust across model specifications.[33] Lagged growth, however, has a significant positive effect suggesting that the same domestic pressures that prompted governments to allow private investment for energy supply were at work in the decision to continue the reform path toward privatization. This effect is substantively very large: a standard deviation increase in the rate of growth raises the odds of reform around 6 times, although the size of this effect varies with the inclusion of different variables.

********** **TABLE 4B HERE**********

The significance of political competition provides evidence that the timing of the government's policy decisions was to a large extent driven by the fear that adopting privatization might be politically risky. We found a significant decline in the probability that privatization will happen if the legislative opposition is to the left of the incumbent (90%), and a substantial increase in this probability when the margin of victory for the incumbent is larger and when his/her legislative advantage increases. Noticeably, a right-wing opposition makes privatization more than 5 times as likely. Thus, higher political

[32] To analyze the lag between policy decisions we dropped all country-years before the market was opened to private capital, leaving only countries that adopted this policy. We then observe these countries until they privatize or until the end of the period if privatization of electricity was not adopted. Countries excluded are Chile (opened to private investment in 1982), Honduras and Paraguay.

[33] Using electricity losses as an alternative measure does not provide better results.

competition delays privatization in electricity when the industry has already opened to private investment.

Other political conditions also affect the politicization of the policymaking process. An increase of one point in the ideological distance between the executive and the legislature delays privatization in over 50%. All three indicators of institutional constraints also increase significantly the lag between opening to competition and privatizing. A one standard deviation in the Henisz's index decreases the likelihood of reform by 70%, a change from unified to divided government decreases this likelihood in 93%, and a change from majority to minority president translates into a drop of 94% in the probability of reform. Furthermore, we find that the electoral cycle has a significant effect on this decision: after the market has been opened to private capital, presidents are more likely to privatize when they are further along in their term. The nationalization legacy of the incumbent, though, has no effect.

In short, the opening of electricity markets to private investment seems to be associated with the pressures of foreign investors and the demands of large users. The politicization of electricity also affected this reform as shown by our results on political competition indicators. The effect of political competition was even stronger for cases in which the market was opened to private capital before privatization was implemented, suggesting that this reform path was a response to the political context that surrounded reforms in the electricity sector. Our analysis of the lag between opening to private capital and privatization shows that the influence of political conditions—either political competition, ideological polarization, or institutional constraints—was stronger for this set of cases than it was for any of the other reforms and had the expected effect of making privatization harder for reformist governments that had already opened the market to private investment. For these cases, privatization was adopted as a second stage in the reform of the sector when energy demands continued to grow and when political conditions did not hinder the process.

| 5 | THE ESTABLISHMENT OF REGULATORY AGENCIES

In this section, we test the conditions that affect the establishment of regulatory authorities. Although we do not expect fiscal budgets to have an effect on the decision to establish regulatory authorities because they generate no resources, we do expect other measures of financial pressure to have an effect. We also expect weak effects from technological pressures given that regulatory authorities do not have an immediate impact on supply. Further, in contrast to privatization and market liberalization, this policy gives politicians with stronger preferences for state regulation—assumed by their past promotion of state intervention in these industries—a policy option that implies re-regulation. We thereby expect that incumbents with a nationalistic past are more likely to adopt this policy.

We use hazard models to estimate the factors that affect the likelihood that a country will establish a regulator, and we relate this probability to the measures of financial and technological pressures, institutional constraints and political competition that we have used in the previous sections. We present the findings for telecoms first, followed by the results for electricity.

Telecom

Our findings show that financial pressures have weak effects on the establishment of regulatory agencies in telecom. Neither the fiscal deficit nor the level of external debt had a significant effect. Moreover, the effect of being under an IMF agreement is not robust (see Table 5). However, the indicator of whether a World Bank loan was in effect in the country that year is significant across all specifications of the model. Teledensity has a significant effect on the establishment of regulators in the sector, but this effect is strongly non-proportional. Although teledensity has a negative effect when included alone in the model, when we also include an interaction with time its effect is positive at the beginning of the period and after 1992-1993 becomes significant and negative (see Figure 3).

***** **TABLE 5 HERE** *****

Neither of our indicators of institutional constraints (*Political Constraints*, *Divided Government*, and *Minority President)* had an effect on this policy reform. Yet, the ideological distance between the president and the legislature have a significant negative effect, reducing the probability that a regulatory agency would be established in this sector by nearly 45% for each additional point of distance. None of our indicators of political competition has a significant effect. Finally, we do find evidence of nationalization legacies. Incumbent parties that nationalized public companies in the telecommunications sector are more than five times more likely to establish a regulatory agency than other parties. That is, parties with a past of state intervention are likely to prefer the establishment of regulators.

Electricity

Our results regarding the establishment of regulatory agencies in electricity suggest that technological pressures played practically no role in this policy decision, although financial pressures did have some effect. The indicator of whether the country was under an IMF agreement has a positive and significant effect (see Table 6). Countries under IMF agreements were around 3 times more likely than other countries to create regulatory agencies. The size of the external debt also had a positive effect on the likelihood of establishing a regulatory agency. As in telecom, the fiscal deficit had no significant effect on the establishment of regulatory agencies, which provide no fiscal revenue to the government.

****** **TABLE 6 ABOUT HERE**********

Of our measures of institutional constraints, the Henisz' index and minority presidents did have a significant, negative effect on the establishment of regulators in the electricity sector in the region. These effects are substantively important: countries with minority presidents are 72% less likely to establish a regulator, and an increase of one standard deviation in the political constraints index reduces the likelihood of policy adoption in 47%. Similarly, the ideological distance between the government and the legislative opposition has a significant negative effect on the establishment of regulators, with a reduction of 55% in the odds of reform for each additional ideological point in distance. In term of political competition, there is a significant effect on policy adoption when the opposition is to the left of the incumbent (*To Left*). Indeed, this variable makes policy adoption nearly 60% less likely.

To sum up, our empirical analysis shows that the difference in the politicization of the two sectors that we noticed for privatization also emerges for the establishment of regulatory authorities. The more significant effects of political competition in electricity than in telecom are evidence of this difference, although the potential politicization of both sectors is shown in the effect of ideological polarization between the incumbent and the opposition in both sectors. In contrast to privatization, fiscal deficits have no effect on the establishment of regulators, which do not generate revenue. The role of international financial institutions and foreign investors on the establishment of regulators—which affect the risk of expropriation— seems to be more robust in electricity. We do not find a robust effect of IMF agreements on reform in telecom, but we do find that World Bank loans have the effect of increasing the likelihood that the privatization and the establishment of regulators will be implemented. Also, while teledensity and electricity consumption play a role in the adoption of privatization, they are not determinant in the adoption of regulators, which has no effect on the supply of services. Finally, legacies of state intervention, which we expected to promote the adoption of regulators, only had the expected effect in the telecom sector.

| 6 | CONCLUSION

This article demonstrates the effect of political competition in shaping the incentives that policymakers have to respond to technological and financial pressures by adopting market reforms in telecom and electricity in Latin America. It emphasizes the incentives faced by incumbents and their political challengers derived from their power differential in votes and seats, as well as their relative ideological positions. Electoral margins affect the electoral risk of policy adoption for incumbents whereas the size of their legislative advantage shapes their capacity to adopt their desired policy and the dangers associated with policy defeat. The relative ideological position of the incumbent and the opposition influence the credibility of policy alternatives and the likelihood that disaffected voters will react to market reforms by defecting to the opposition. Similarly, the potential for policy polarization is measured by the ideological distance between the executive and the legislative opposition, which affects the incentives of the opposition for policy obstruction rather than compromise through coalition building.

By comparing across countries and across sectors, we are able to find systematic differences in the conditions under which adoption of policy reform took place in electricity and telecom. While inter-industry patterns of policy adoption have been noticed before (Levi-Faur 1999, 2004), they have typically been associated to technological differences (Bartle 2002). We argue that these inter-industry differences also result from political differences between both sectors. Electric energy is more politicized than telecom as its coverage is broader—expanding the costs of reforms across more consumers who may stand to lose their subsidies. Additionally, energy has an important symbolic value in Latin America, making it a politically sensitive issue. As a result, indicators of political competition have a stronger effect in this sector than in telecom reforms—especially numerical indicators of vote and seat differentials that are never significant in telecom. Here we have provided evidence that one way in which incumbents have faced the political challenge of reforming the electricity sector has been through a two-stage reform, opening to private investment before privatizing. Finally, legacies of state intervention are important in both the establishment of regulators and privatization in telecom, but they play no role in electricity.

Our results also show patterns along policy dimensions. Fiscal deficits only influence the adoption of privatization, which is the only policy that produces revenues. Teledensity and electricity consumption per capita also have a stronger effect on privatization than on the establishment of regulatory frameworks. Both variables have non-proportional effects on the probability that privatization will be adopted, suggesting that richer countries were more likely to try this experiment at the beginning of the period, with poorer countries becoming more committed to reform as time went by. Private investors and large users, who had larger stakes in the process, were more instrumental in the opening of electricity to private investment than in telecom where large users can more easily bypass the public network. Technological pressures, however, have practically no effect on the establishment of regulatory authorities since this policy represents no immediate impact on supply. By contrast, financial pressures other than fiscal deficits

seem to be somewhat more important for the establishment of regulatory agencies than in the decision to privatize public utilities.[34]

This article makes two main contributions to the literature on policymaking. First, we emphasize the importance of political competition on policymaking in a context of strong technological and financial pressures for policy adoption. Our findings show the importance of political competition, focusing particularly on two dimensions: the political incentives faced by the incumbent (determined by the difference in votes and seats between the president and its main challengers) and the viability of using policy obstruction as an electoral banner (which depends on the credibility of policy alternatives as defined by the relative ideological position of the incumbent and the opposition). Previous literature has shown the connection between domestic politics and the policy process, but it has mainly focused on the effects of institutional constraints on policymaking. Instead, we emphasize the effects of political competition on policy adoption—and the incentives to form potential policy coalitions generated by ideological polarization—even when technological and financial pressures are forcing governments of different ideologies to implement the same policies in the region.

Second, we stress the importance of disaggregating the analysis of market reforms in order to better understand different patterns of policymaking in the context of policy convergence generated by technological and financial pressures. The study of market reforms in Latin America has moved from a first generation of work that focused on the feasibility of market reforms in general to a second generation that looks more carefully at the dynamics of each reform. In this article we use duration analysis to study the conditions under which different policy reforms were adopted across countries and across two industries. This strategy allows us to identify systematic inter-industry and inter-policy differences in policymaking. The findings presented here should be tested in other sectors and regions to confirm their generalizability.

One important limitation of our analysis is that by studying policy adoption –or what Kaufman and Nelson (2004) call "authorization"— we have ignored variation in the implementation of the same policy following the initial decision to adopt it. Although the actual implementation of these reforms tends to be very technical and has a much lower potential to become electorally salient, the political conditions affecting these technical choices is an avenue of research that promises to further add to our understanding of policymaking under technological and financial pressures. Indeed, the lower visibility of policy implementation—as opposed to adoption—might provide a crucial tool for understanding the limits of political competition and the weight of political conditions in shaping policymaking in two sectors that provide crucial infrastructure and essential public services.

[34] This is true as well when we use our indicator of World Bank loans in electricity. Although the variable is significant for both policy decisions, the size of the effect is larger for the establishment of regulators than for privatization.

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Table 1: Public Utility Reform in Latin America

Country	RA Electricity	RA Telecom	Privatization Telecom	Privatization Telecom (law approved)	Privatization Electricity	Privatization Electricity (law approved)	Competition Electricity (Private Capital)	Competition Telecom Local	Competition Telecom Long Distance
Argentina	1991	1990	1990	1990	1992	1990	1992	2000	2000
Bolivia	1994	1994	1995	1994	1995	1994	1994	2001	2001
Brazil	1996	1997	1998	1997	1995	1995	1995	1999	1999
Chile	1978/1985[1]	1977/1982	1986	1982	1986	1982	1982	1982	1994
Colombia	1994	1994	.	1994	1996	1994	1991	1998	1997
Costa Rica	1996	1996	.	.	.	.	1998	.	.
Dominican Republic	1999	1998	1931	1931[2]	1999	1997	1999	1990	1990
Ecuador	1996	1992	.	1992	.	2000	1998	2002	2002
El Salvador	1996	1996	1998	1996	1998	1996	1998	1996	1996
Guatemala	1996	1996	1998	1996	1997	1996	1996	1998	1998
Honduras	1994	1995	.	1995	.	1994	.	.[3]	.
Mexico	1995	1995	1990	1989	.	.	1992	1997	1997
Nicaragua	1994	1995	2001	1995	2000	1998	1997	2005[4]	2005
Panama	1996	1996	1997	1996	1998	1997	1998	2003	1996
Paraguay	.	1995	.	1995	.	2000	.	.	.
Peru	1996	1993	1994	1993	1994	1992	1994	1999	1999
Uruguay	1997	2001	.	2001	.	.	1997	.	.
Venezuela	1992	1991	1991	1991	.	2001	1996	2000	2000

Table 2. Privatization Telecom (Adoption of Privatization Law)*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Under IMF	2.354		2.093	1.457	2.592	2.530	2.626	2.637	5.085	2.318	6.020	2.628
	(1.62)		(1.17)	(0.87)	(1.80)*	(1.63)	(1.64)	(1.78)*	(2.15)**	(1.42)	(3.99)***	(1.67)*
WB Loans		4.175										
		(2.47)**										
Debt	1.005	1.177	1.148	1.000	1.066	1.038	1.058	1.051	1.080	1.126	0.759	1.052
	(0.56)	(1.06)	(1.11)	(0.06)	(0.48)	(0.21)	(0.38)	(0.31)	(0.52)	(0.69)	(2.00)**	(0.32)
Debt * Log*T*		0.926	0.934		0.968	0.982	0.973	0.975	0.964	0.943	1.140	0.976
		(1.06)	(1.13)		(0.51)	(0.21)	(0.39)	(0.32)	(0.52)	(0.72)	(1.91)*	(0.32)
Budget			0.862									
			(1.77)*									
Tele Density	0.989	1.112	1.152		1.140	1.134	1.131	1.130	1.135	1.130	1.123	1.132
	(1.68)*	(1.76)*	(3.88)***		(2.94)***	(2.84)***	(3.41)***	(3.25)***	(3.34)***	(3.17)***	(2.76)***	(3.30)***
Tele Density * Log*T*		0.950	0.935		0.938	0.941	0.943	0.942	0.941	0.942	0.936	0.942
		(2.06)**	(4.34)***		(3.28)***	(3.25)***	(3.73)***	(3.82)***	(3.74)***	(3.87)***	(3.72)***	(3.85)***
GDP per Capita				1.004								
				(2.20)**								
GDP * Log*T*				0.998								
				(2.38)**								
Growth	0.922	1.743	1.831	1.662	1.388	1.429	1.331	1.373	1.147	1.438	1.251	1.385
	(1.23)	(1.19)	(2.72)***	(1.36)	(0.96)	(1.00)	(0.93)	(0.86)	(0.41)	(1.04)	(0.56)	(1.04)
Growth * Log*T*		0.691	0.708	0.756	0.800	0.794	0.825	0.811	0.880	0.787	0.876	0.807
		(1.69)*	(2.96)***	(1.68)*	(1.35)	(1.33)	(1.26)	(1.07)	(0.75)	(1.34)	(0.71)	(1.37)
Political Constraints					3.116							
					(0.80)							
Divided Government						1.149						
						(0.19)						
Minority President							0.836					
							(0.23)					
Distance									0.598			
									(2.06)**			
Margin								0.540				
								(0.31)				
To Left								1.201				
								(0.28)				
Legislative Advantage										1.001		
										(0.24)		
Right Opposition										0.605		
										(0.96)		
Electoral Cycle												0.956
												(0.29)
Nationalizing Party (in Telecom)											18.639	
											(3.13)***	
Observations	153	151	150	153	153	153	153	153	153	153	153	153

* Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%. Regressions exclude Chile, Costa Rica and the Dominican Republic, all of which had approved privatization laws by 1985, when our dataset begins.

Table 3. Privatization Electricity (Adoption of Privatization Law)*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Under IMF	0.541	0.420	0.709	0.556	0.672	0.468	1.038	0.534	0.650	0.584	0.485
	(1.26)	(1.39)	(0.63)	(1.22)	(0.59)	(1.08)	(0.06)	(1.10)	(0.70)	(1.19)	(1.09)
Debt	1.011	1.007	1.010	1.012	1.008	1.015	1.016	1.015	1.011	1.012	1.012
	(0.86)	(0.53)	(0.75)	(0.92)	(0.78)	(1.15)	(1.09)	(1.09)	(0.95)	(0.94)	(0.92)
Budget		0.851									
		(1.88)*									
Electricity Consumption	0.999	1.010		1.011	1.008	1.009	1.008	1.008	1.007	1.008	1.009
	(2.13)**	(2.64)***		(3.34)***	(2.36)**	(2.07)**	(2.38)**	(2.04)**	(2.11)**	(2.19)**	(2.21)**
Electricity Consumption * Log*T*		0.995		0.995	0.996	0.996	0.996	0.996	0.996	0.996	0.996
		(2.76)***		(3.43)***	(2.49)**	(2.12)**	(2.65)***	(2.21)**	(2.44)**	(2.29)**	(2.33)**
GDP per Capita			1.000								
			(1.14)								
Growth	0.984	0.740	0.597	0.559	0.520	0.557	0.351	0.486	0.445	0.507	0.584
	(0.19)	(0.91)	(1.44)	(1.84)*	(1.85)*	(1.99)**	(3.17)***	(2.17)**	(2.15)**	(2.50)**	(1.67)*
Growth * Log*T*		1.126	1.240	1.300	1.328	1.303	1.616	1.381	1.424	1.349	1.273
		(0.79)	(1.39)	(2.03)**	(1.90)*	(2.06)**	(3.31)***	(2.23)**	(2.16)**	(2.41)**	(1.81)*
Political Constraints				0.073							
				(2.09)**							
Divided Government					0.553						
					(1.00)						
Minority President						1.359					
						(0.46)					
Distance							0.550				
							(3.75)***				
Margin / SD(Margin)[5]								1.725			
								(1.15)			
To Left								0.528			
								(1.09)			
Legislative Advantage									1.009		
									(1.85)*		
Right Opposition									2.563		
									(0.98)		
Electoral Cycle										0.728	
										(1.54)	
Nationalizing Party (in Electricity)											0.785
											(0.38)
Observations	215	212	215	215	215	215	215	215	215	215	215

* Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%; Regressions exclude Chile, which had already approved a privatization law by 1985, when our dataset begins.

Table 4A. Decision to Open Up to Private Capital*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Under IMF	1.310	1.320	1.304	1.312	1.433	1.149	1.297	2.265	1.664	1.265	1.543
	(0.46)	(0.50)	(0.45)	(0.40)	(0.62)	(0.23)	(0.43)	(1.26)	(0.58)	(0.34)	(0.67)
Debt	1.039	1.042	1.043	1.039	1.036	1.039	1.036	1.044	1.040	1.044	1.039
	(2.22)**	(2.24)**	(1.99)**	(2.34)**	(2.12)**	(2.30)**	(1.77)*	(2.69)***	(2.42)**	(2.29)**	(2.13)**
Budget		1.080									
		(0.66)									
Electricity Consumption	0.995	0.994		0.995	0.995	0.995	0.994	0.994	0.992	0.994	0.995
	(1.34)	(1.26)		(1.36)	(1.30)	(1.15)	(1.29)	(1.30)	(1.70)*	(1.45)	(1.18)
Electricity Consumption * Log*T*	1.002	1.003		1.002	1.003	1.002	1.003	1.003	1.004	1.003	1.002
	(1.52)	(1.40)		(1.54)	(1.48)	(1.35)	(1.44)	(1.39)	(1.75)*	(1.72)*	(1.34)
GDP per Capita/ SD(GDP per Capita)[6]			1.798								
			(2.16)**								
Growth	1.478	1.485	1.380	1.478	1.493	1.496	1.502	1.520	1.600	1.546	1.482
	(2.79)***	(2.81)***	(2.30)**	(2.96)***	(3.25)***	(2.89)***	(3.39)***	(3.00)***	(3.88)***	(2.51)**	(2.68)***
Political Constraints						0.233					
						(0.87)					
Divided Government					0.672						
					(0.60)						
Minority President							0.645				
							(0.40)				
Distance								0.516			
								(2.03)**			
Margin / SD(Margin)[7]										1.851	
										(2.58)***	
To Left										0.946	
										(0.08)	
Legislative Advantage									1.011		
									(2.94)***		
Right Opposition									1.861		
									(0.50)		
Electoral Cycle											0.897
											(0.53)
Nationalizing Party (in Electricity)				0.992							
				(0.01)							
Observations	207	204	207	207	207	207	207	207	207	206	207

* Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%; Regressions exclude Chile, which had opened the electricity market to private competition since 1982.

Table 4B. Lag Between Opening to Private Capital and Privatization*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Under IMF	1.363	1.148	2.421	1.498	0.952	1.241	1.068	2.611	4.672	1.389	0.578	0.542
	(0.45)	(0.18)	(1.10)	(0.54)	(0.06)	(0.30)	(0.08)	(0.89)	(1.62)	(0.39)	(0.75)	(0.71)
Debt	1.035	1.048	1.053	1.051	1.055	1.044	1.065	1.032	1.065	1.052	1.049	1.073
	(1.57)	(1.34)	(1.49)	(1.62)	(1.35)	(1.28)	(1.83)*	(0.75)	(1.57)	(0.85)	(1.33)	(2.11)**
Debt * Log*T*		1.017	1.019	0.983	1.006	1.009	1.029	1.011		1.018	1.058	1.023
		(1.17)	(1.28)	(0.73)	(0.29)	(0.53)	(1.20)	(0.59)		(0.67)	(1.89)*	(1.29)
Budget			1.307									
			(1.43)									
Electricity Consumption	0.999	1.000	0.999		0.999	0.999	1.000	1.000	0.999	0.999	1.000	1.000
	(1.72)*	(0.55)	(0.99)		(0.83)	(1.43)	(0.15)	(0.17)	(1.15)	(1.62)	(0.46)	(0.44)
Electricity Consumption * Log*T*		0.999	0.999		0.999	0.999	0.998	0.998	0.999	0.999	0.998	0.998
		(1.99)**	(1.56)		(1.74)*	(1.95)*	(2.39)**	(1.92)*	(1.19)	(1.13)	(2.89)***	(2.36)**
GDP per Capita				1.000								
				(0.95)								
Growth	1.543	1.514	1.657	1.560	1.567	1.961	1.706	1.746	1.825	1.829	2.233	1.435
	(3.22)***	(2.83)***	(2.90)***	(2.80)***	(2.72)***	(2.89)***	(3.19)***	(4.09)***	(3.30)***	(3.77)***	(3.12)***	(1.88)*
Political Constraints							0.001					
							(2.54)**					
Divided Government						0.068						
						(3.18)***						
Minority President								0.062				
								(2.06)**				
Distance									0.543			
									(2.32)**			
Distance * Log*T*									0.731			
									(0.91)			
Margin / SD(Margin)[8]											12.995	
											(3.54)***	
To Left											0.102	
											(2.28)**	
Legislative Advantage										1.013		
										(2.43)**		
Legislative Advantage * Log*T*										1.004		
										(0.27)		
Right Opposition										5.757		
										(1.90)*		
Electoral Cycle												1.788
												(2.67)***
Nationalizing Party (in Electricity)					2.099							
					(0.60)							
Observations	44	44	44	44	44	44	44	44	44	44	44	44

* Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Regressions include only countries that opened to competition after 1985 and thus excludes Honduras and Paraguay (did not open to private capital) and Chile, which opened before 1985.

Table 5. Regulatory Agency Telecom*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Under IMF	2.559		3.118	2.971	1.763	3.243	2.768	3.130	6.949	2.924	3.174	3.120	3.984
	(1.73)*		(1.79)*	(1.75)*	(1.41)	(1.91)*	(1.72)*	(1.84)*	(2.13)**	(1.84)*	(1.64)	(1.86)*	(3.33)***
WB Loans		7.181											
		(3.40)***											
Debt	1.007	1.006	1.010	1.007	1.011	1.009	1.015	1.009	1.009	1.010	1.008	1.009	1.012
	(0.73)	(0.49)	(0.93)	(0.68)	(1.07)	(0.86)	(1.39)	(0.91)	(0.91)	(1.01)	(0.78)	(0.96)	(1.01)
Budget				0.958									
				(0.51)									
Tele Density	0.987	1.163	1.133	1.141		1.140	1.156	1.137	1.154	1.141	1.137	1.142	1.125
	(2.29)**	(2.98)***	(3.40)***	(3.64)***		(3.72)***	(4.16)***	(3.91)***	(3.99)***	(4.00)***	(3.70)***	(2.78)***	(3.43)***
Tele Density * Log*T*		0.936	0.944	0.941		0.941	0.936	0.942	0.936	0.941	0.942	0.941	0.940
		(3.11)***	(3.85)***	(4.19)***		(4.35)***	(4.67)***	(4.59)***	(4.56)***	(4.64)***	(4.37)***	(3.25)***	(4.46)***
GDP per Capita					1.000								
					(1.37)								
Growth	0.898	0.780	0.883	0.875	0.906	0.869	0.864	0.876	0.872	0.880	0.873	0.874	0.883
	(1.32)	(1.85)*	(1.36)	(1.62)	(1.19)	(1.67)*	(1.62)	(1.62)	(1.70)*	(1.40)	(1.60)	(1.57)	(1.65)*
Privatization of Electricity			1.326										
			(0.38)										
Political Constraints						1.921							
						(0.61)							
Divided Government							1.689						
							(1.08)						
Minority President								0.914					
								(0.15)					
Distance									0.548				
									(3.15)***				
Margin										2.019			
										(0.38)			
To Left										0.630			
										(0.69)			
Legislative Advantage											1.001		
											(0.20)		
Right Opposition											0.893		
											(0.25)		
Law and Order												0.925	
												(0.15)	
Nationalizing Party (in Telecom)													6.346
													(3.01)***
Observations	185	183	185	182	185	185	185	185	185	185	185	181	185

* Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%; Regressions exclude Chile and Costa Rica, which established regulators before 1985, when our dataset begins.

Table 6. Regulatory Agency Electricity*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Under IMF	3.113	3.106	3.110	2.996	2.683	3.682	3.610	7.665	2.376	3.655	3.262	3.741
	(2.04)**	(2.02)**	(2.01)**	(2.01)**	(1.97)**	(2.09)**	(2.73)***	(3.19)***	(1.52)	(2.04)**	(2.21)**	(1.92)*
Debt	1.026	1.026	1.026	1.023	1.024	1.022	1.019	1.029	1.030	1.026	1.024	1.021
	(2.35)**	(2.00)**	(2.33)**	(1.93)*	(2.37)**	(1.90)*	(1.68)*	(2.70)***	(2.39)**	(2.24)**	(2.32)**	(1.95)*
Budget			1.007									
			(0.07)									
Electricity Consumption	1.001	1.001	1.001		1.001	1.000	1.001	1.000	1.000	1.000	1.001	1.001
	(1.23)	(1.23)	(1.21)		(1.58)	(1.03)	(1.85)*	(0.63)	(1.50)	(0.78)	(1.27)	(2.33)**
GDP per Capita				1.000								
				(0.20)								
Growth	1.155	1.163	1.156	1.140	1.147	1.180	1.200	1.194	1.163	1.158	1.172	1.093
	(1.59)	(1.28)	(1.56)	(1.43)	(1.50)	(1.56)	(1.65)*	(1.53)	(1.46)	(1.45)	(1.62)	(0.97)
Privatization of Electricity		0.917										
		(0.12)										
Political Constraints					0.063							
					(2.32)**							
Divided Government						0.654						
						(0.63)						
Minority President							0.279					
							(1.75)*					
Distance								0.458				
								(2.94)***				
Margin									1.584			
									(0.53)			
To Left									0.432			
									(1.66)*			
Legislative Advantage										1.002		
										(0.93)		
Right Opposition										1.712		
										(1.02)		
Law and Order											0.675	
											(1.19)	
Nationalizing Party (in Electricity)												0.403
												(1.40)
Observations	195	195	192	195	195	195	195	195	195	195	191	195

* Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%; Deciding what year to use for Chile was complicated by the fact that both the CNE and the Superintendencia have regulatory functions and they were created in different years (1985 and 1978, respectively). We decided to use 1985. However, we also ran the regressions excluding Chile (since we do not have data for 1978). The results are practically identical, with the exception of growth which is non-proportional (and sometimes significant) in the regressions that exclude Chile.

Figure 1. Effect of Teledensity on Likelihood of Privatization in Telecom, Over Time

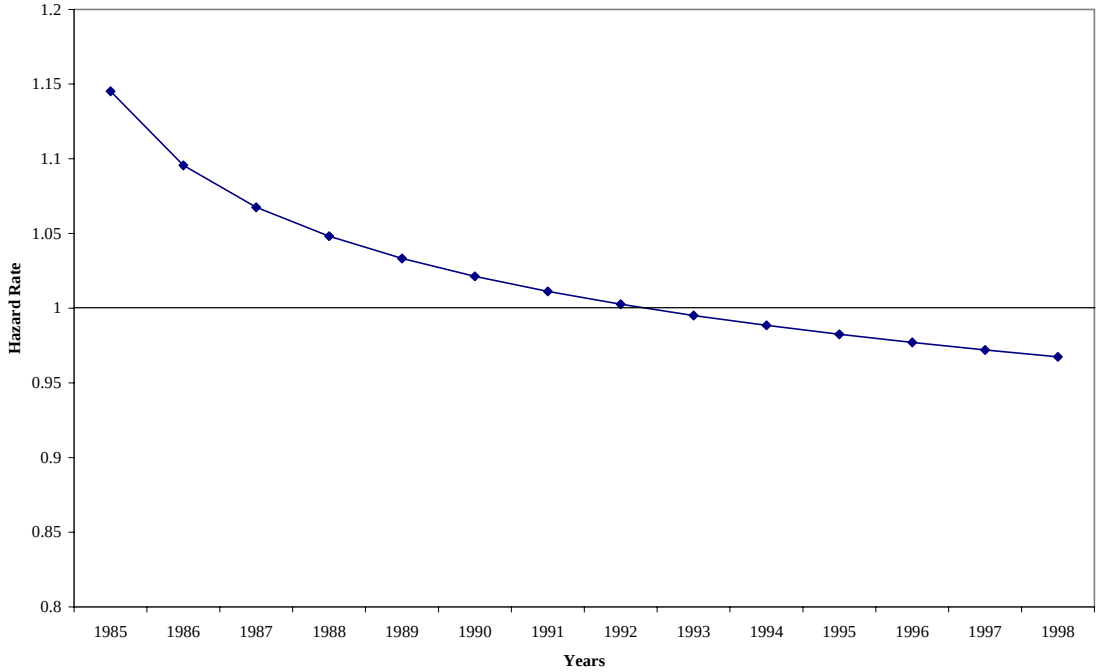


Figure 2. Effect of Electricity Consumption on Privatization of Electricity, Over Time

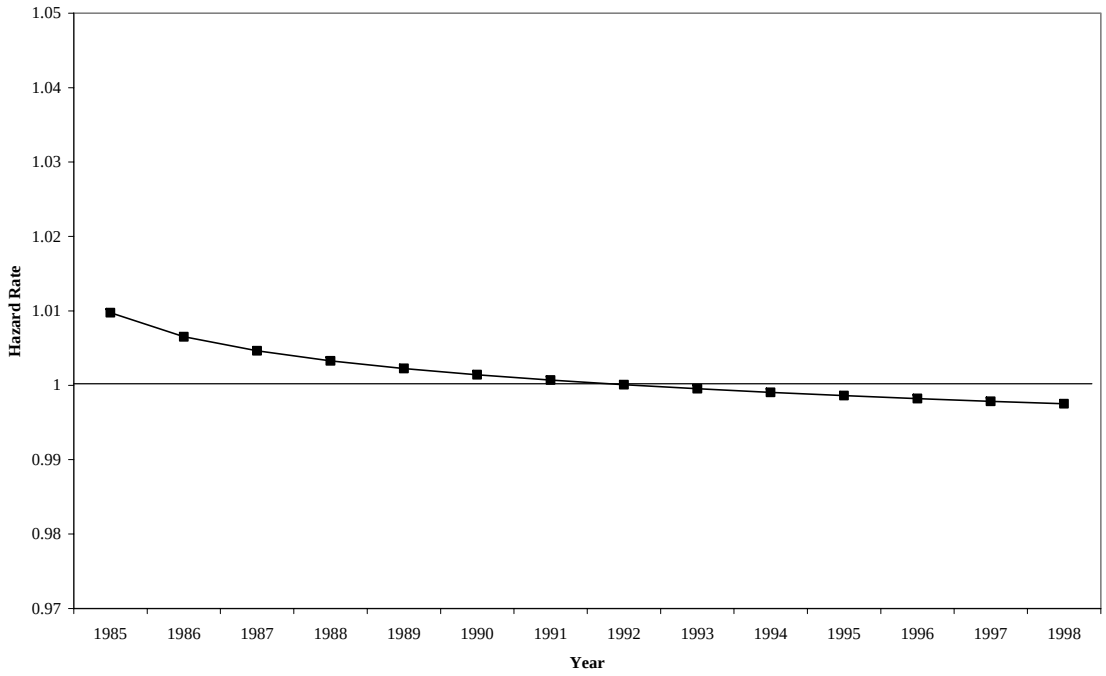
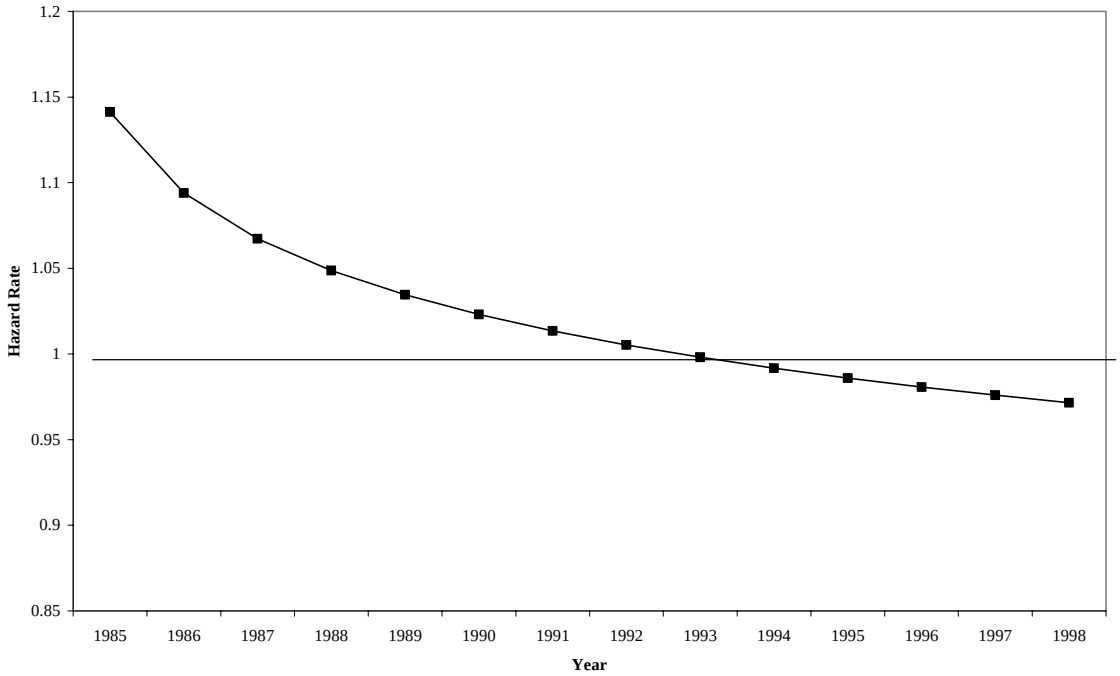


Figure 3. Effect of Teledensity on Likelihood of Establishment of Regulatory Agency, Over Time



[1] Deciding which year to use for Chile was complicated by the fact that both the CNE and the *Superintendencia* have regulatory functions and they were created in different years (1985 and 1978, respectively). Moreover, the CNE had no authority over tariffs until 1982. We decided to use 1985. However, we also ran the regressions excluding Chile (since we do not have data for 1978 or 1982). The results are practically identical.

[2] Was private since 1931, when Trujillo sold it to the *Compañía Dominicana de Teléfonos* (see http://www.indotel.org.do/(y5r2dfm3l5a4ujbnddfbob4)/historia.aspx?article=202).

[3] IADB document says "partial competition"

[4] 4 years of exclusivity alter first sale of assets (2001)

[5] We divided *Margin* by its standard deviation to make the result more intuitive. Electoral margins can be very small so coefficients for this variable tend to be very large. The interpretation for the hazard rate on *Margin / SD(Margin)* is the increase in the odds of reform when the incumbent's margin increased one standard deviation.

[6] Since the differences between GDP per capita vary very widely, we divided *GDP per Capita* by its standard deviation to make the result easier to interpret. The interpretation for the hazard rate on is the increase in the odds of reform when *GDP per Capita* increases one standard deviation.

[7] We divided *Margin* by its standard deviation to make the result more intuitive. Since the differences between the values for different presidents can be very small, coefficients for this variable tend to be extremely large. The interpretation for the hazard rate on *Margin / SD(Margin)* is the increase in the odds of reform when the incumbent's margin increased one standard deviation.

[8] We divided *Margin* by its standard deviation to make the result more intuitive. Since the differences between the values for different presidents can be very small, coefficients for this variable tend to be extremely large. The interpretation for the hazard rate on *Margin / SD(Margin)* is the increase in the odds of reform when the incumbent's margin increased one standard deviation.

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